GP7SM OPERATING INSTRUCTIONS

Getting started - a quick guide

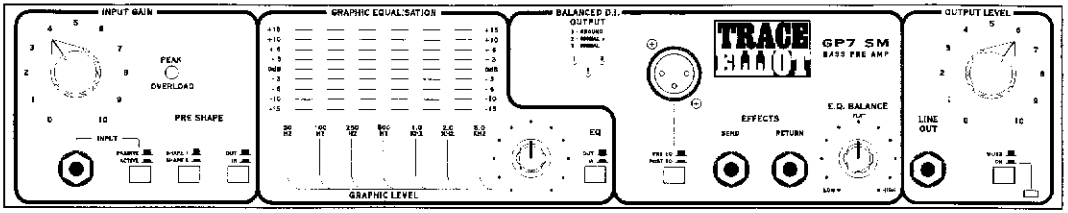
As well as being available in its stand alone rack-mounting format, the GP7SM Sound Management Series pre-amp is included in the following products:-

Amp heads:
AH600SM, AH400SM, AH300SM, RAH300SM, AH150SM, RAH150SM
Combos:
7410HSM, 7210HSM, 7215SM, 715SM, BLX80SM, BLX150HSM

Therefore, careful attention should be paid to this section if you own one of these units.

This QUICK GUIDE is for those that have used TRACE ELLIOT equipment before and are familiar with using the INPUT GAIN control and the GRAPHIC sections.
With the mains power connected to the GP7SM, and the voltage selector set to the correct voltage for your country, turn on the power to the unit with the rear panel power switch. Assuming that you are correctly connected to the power amp and speakers the GP7SM will be ready to use.
N.B. The GP7SM should always be turned on and off with the front panel switch set to MUTE. This will ensure that the unit powers up and down silently.

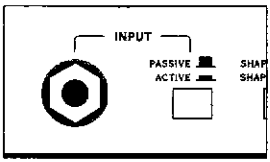
With the controls set as in follows:- PRE-SHAPE - 'OUT', GRAPHIC - all sliders in their 0dB positions, EQ BALANCE - set to its centre position, the GP7SM is set completely FLAT, i.e. no EQ is applied to the signal. The signal remains exactly as it came from the instrument.
This is always a good place to start, by first becoming familiar with the pure sound of your instrument you will be better able to decide what sound modifications will give you the results you require.



FRONT VIEW OF GP7SM

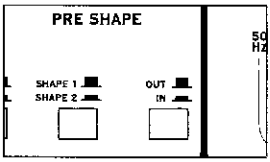
Basic sound

Although the familiar basic sound of a TRACE ELLIOT preamp has been retained in the GP7SM, you will also find an additional pallet of sounds readily available that cover many styles of bass playing. Most of these are available without the need for you to alter your favourite GRAPHIC setting.



Input passive/active switch

In its PASSIVE position the input becomes a very high impedance with the correct sensitivity to suit PASSIVE basses. Set to its ACTIVE position the input impedance is reduced and the input signal attenuated to cope with the large signals that some active basses can give out.

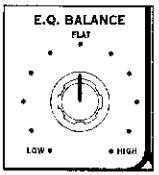


Pre shape

As well as the well known classic TRACE ELLIOT PRE SHAPE (SHAPE 1), a second fixed EQ has been added in the form of SHAPE 2. This is a more ROCK orientated PRE SHAPE with a solid bottom end and more mid than SHAPE 1.

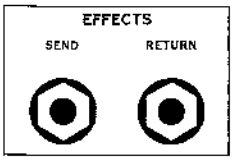
Altering the EQ

The GRAPHIC EQUALISATION section in this unit is based on the traditional TRACE ELLIOT 7 band design, and apart from minor improvements that have been made, this will perform exactly as the SERIES 6 units. The setting of this will therefore be familiar to those reading this QUICK GUIDE.
A 'GRAPHIC LEVEL' control has been added to the GP7SM pre-amp. This adjusts the level of the GRAPHIC section when selected by the front panel push switch, and should be set to give approximately the same overall level with the graphic either in or out.



EQ balance control

This is something very new in concept, and something that you will not be familiar with from any other amplifier. As such it requires a short description of its function (a full description is given later in these instructions).
Basically it is a very powerful new kind of tone control section on one knob. It can be thought of as a pivot point at the centre of the graphic about which the frequency response of the graphic may be swung. Turning to the right increases the top end and decreases the the lower end of the graphic, whilst turning to the left has the reverse effect. You do not need to understand exactly how this is done to appreciate the power it gives you in instantly being able to transform your sound with one simple to operate knob.



Effect loop
As with the previous GP7 a single SERIAL effects loop has been provided that operates at a level of -10dB D.I. OUTPUT (Not available on the BLX models). A balanced D.I. socket has been provided that is switchable PRE or POST E.Q

Line output
A line output is provided for connection to further power amplifiers for a more powerful system.

Tuner output
This is a rear panel mounted jack socket to allow permanent connection of a tuner without it affecting the quality of the instruments signal.

REAR PANEL FACILITIES (rack mount pre-amp only)

Line output
This a duplication of the front panel LINE OUT socket and is used for connection to your power amplifier.

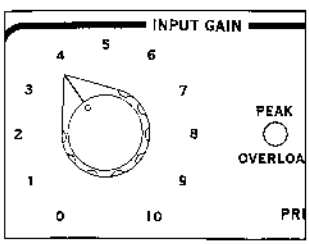
D.I. output
This is also a duplication of the front panel D.I. socket.

Effects loop
An effects loop is provided on the rear of the unit to facilitate easy connection to rack mounted effects units. This operates in series with the front panel effects loop.

Ground lift
A GROUND LIFT switch is provided to lift the mains ground from the signal circuits and prevent a ground loop being formed between the pre amp and the power amp.

GP7SM PRE AMP FULL INSTRUCTIONS

Input
There is only one instrument input jack provided, this will perfectly match both passive bass guitars (i.e. those with no internal battery) and active instruments by selecting either type with the switch adjacent to this socket. The two settings are provided to cover the wide range of signal levels available from these two types of instrument.
However, should you be using an active instrument that does not have a large signal output, then it is perfectly acceptable to set this switch to PASSIVE to provide a more sensitive input. The ACTIVE setting is only provided to attenuate the very large signal outputs that some active basses have.



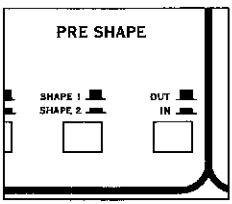
Input gain setting
To get the best results from your GP7SM it is important to understand fully the correct use of the INPUT GAIN control and the OUTPUT LEVEL control.
The optimum setting is achieved when the INPUT GAIN control is as high as possible without lighting the red OVERLOAD LED too often. The OUTPUT LEVEL should always be set as low as possible to achieve the required playing volume i.e. the INPUT GAIN is adjusted and left set at the optimum level while the OUTPUT LEVEL is used to make any changes to the amplifier volume.

To set these two controls correctly use the following procedure:-

1. First turn the OUTPUT LEVEL control to zero.
2. Plug your bass in and select ACTIVE or PASSIVE to suit the instrument.
3. Turn all volume controls on your bass up full.
4. Gradually turn up the INPUT GAIN control while playing your bass as hard as you are likely to during your performance.
5. When the red OVERLOAD LED lights up reduce the INPUT GAIN slightly until this LED only flick on occasionally.
6. Now turn up the OUTPUT LEVEL to give the desired volume.

N.B. For most basses the INPUT GAIN control should end up being set between 5 and 8 on the scale.

Please note: If the GRAPHIC EQUALISATION is altered it may be necessary to re-adjust the INPUT GAIN control. Re-set the INPUT GAIN by following steps 3 to 6 in the above procedure.
Remember PASSIVE basses with the instruments own volume control turned back will reduce the upper frequency response of the instrument so try to keep this control well advanced, using the preamp OUTPUT control to provide for larger changes in volume.

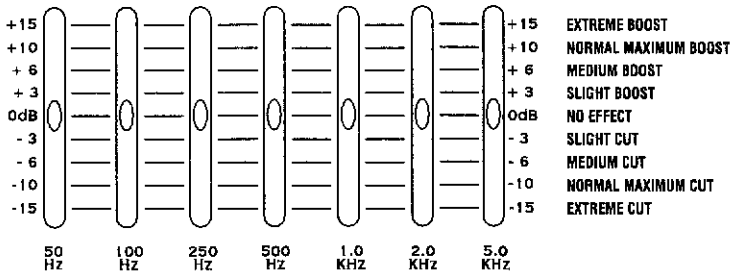


Pre shape

The PRE SHAPE facility is like a preset graphic equaliser built into the GP12SMX that you can switch in or out to modify the sound of the bass. Two pre shape sounds have been provided on this unit and are selectable from the front panel. The selected shape may also be switched in or out with its front panel switch.
PRE SHAPE 1 is the classic TRACE ELLIOT EQ as found on Series 6 units, it adds a boost at both the low end (50Hz) and the high end (2 to 5Hz) of the frequency spectrum as well as a cut at mid frequencies (400Hz).
PRE SHAPE 2 is a more rock orientated equalisation providing a wider bandwidth boost at low frequencies, less of a mid cut and a slight boost at higher frequencies. This is a less extreme EQ than PRE SHAPE 1.
Both these pre shaped sounds will add extra punch to your sound and may be used with or without the GRAPHIC EQUALISATION section being switched in.

Using the graphic equaliser

Below is a representation of the graphic sliders showing the frequency centres and degrees of BOOST and CUT available with them.



A carefully designed GRAPHIC EQUALISER is a very flexible way of varying the sound of a bass guitar and if properly used will provide an extremely powerful method of tone shaping for your instrument.
The GP7SM has a 7 band GRAPHIC EQUALISER that can be switched IN or OUT of the signal path from the front panel push button. Because of the flexibility and massive BOOST and CUT potential of the GRAPHIC it is important to know how to get the best from it.
It is equally important to know how to avoid the problems that can be associated with its incorrect use, so firstly here is a list of things not to do, and why:-

1. ***Do not*** fully boost just one frequency band as this will tend to emphasise a small range of notes on the bass producing a PEAKY and not very useful sound.
2. ***Do not*** boost or cut all frequencies as this will have the same effect as increasing or decreasing the overall volume level without affecting the tonal characteristics of the sound.
3. ***Do not*** use excessive bottom (50Hz) boost on the graphic unless your speakers can handle it (very few speaker systems are capable of handling frequencies as low as this with any degree of efficiency).
4. ***Do not*** use excessive top boost; this will tend to add a lot of HISS to the sound (especially with active instruments).

The 7 sliders have been provided to give you full control at a number of frequencies providing a flexible and comprehensive bass EQ system for the discerning user.

Useful observations

The fundamental frequency range of a bass guitar is from 41.2Hz (bottom E string) to around 392Hz (two octaves up on the G string) not a very wide range. Obviously a lot of harmonics are produced when playing and these can extend up to 5kHz or more.

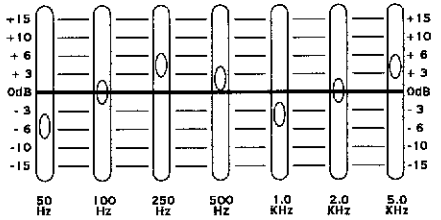
Other frequencies are also produced by the attack portion of the note when the string is first struck. This attack can be emphasised by boosting the top end.

However because of the fairly small range of frequencies from the bass by top end we mean between 1.3kHz and 5kHz. You will find by boosting at 5kHz the ATTACK will be emphasised whereas by boosting at 1kHz and 2kHz you will bring out the harmonics in the note.

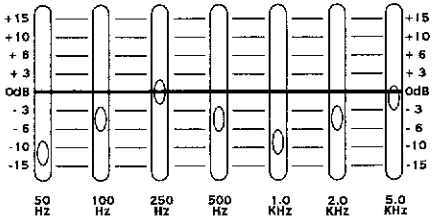
Use the 50Hz slider sparingly unless you have a massive stack of speakers available, and the power amps to drive them. You will find that rolling off the bottom end by using this slider to give a degree of cut will allow you to play at a far greater volume level without the speakers complaining. You will find that boosting at 100Hz will give a greater perceived increase in bottom end than boosting at 50Hz.

Back to the graphic

Having got out of the way the things NOT TO DO we move on to what you can do with the GRAPHIC EQUALISATION section. Basically you can do whatever you like as long as you bear in mind the DONT'S and follow two simple rules, these are:-

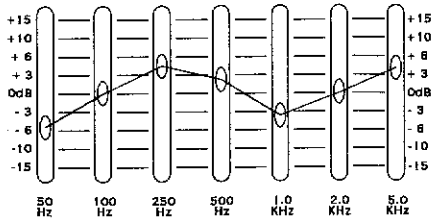


RIGHT - BALANCED AROUND 0dB

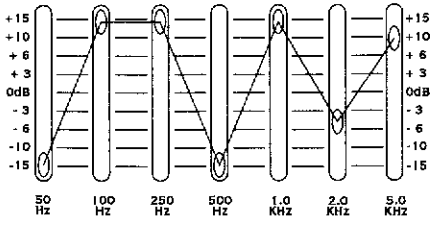


WRONG - SLIDERS NOT BALANCED AROUND 0dB

1. Try to keep the slider settings balanced around the 0dB line on the graphic.(see the diagram above).



RIGHT - SMOOTH CHANGES

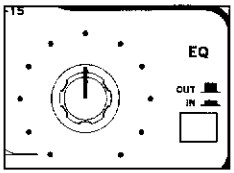


WRONG - CHANGES TOO ABRUPT

2. Try to set the sliders in a smooth, gentle curve, as setting adjacent sliders at opposite extremes will give sharp [peaks and troughs in the sound, emphasising some notes and killing others. (see diagram above).

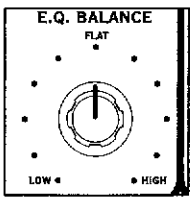
Switch the graphic IN and experiment with the available sounds but remember TOP END means 1kHz to 5kHz, BOTTOM END means 50Hz to 100Hz and MID RANGE means 250Hz and 500Hz.

N.B. Don't forget to re-adjust the INPUT GAIN setting once you have altered the graphic. This is necessary because altering the graphic will change the overall gain and the level indicating circuit monitors the signal at a number of places to ensure that clipping or distortion is not occurring at any stage. Consequently changing the gain will change the reading on the LED's and you will have to re-adjust the INPUT GAIN control to compensate.



Graphic level control

The GRAPHIC LEVEL control adjusts the level of signal from the graphic section only. Consequently it will have no effect when the graphic is switched out.
This control is to allow you to balance the levels between graphic IN and graphic OUT, and should be set so that only a change in EQ occurs when the graphic is switched in and not a large change in level as well.
It can however be used to provide a boost in level when the graphic is switched IN if desired although we would advise that this is kept to a small increase so as not to overload the following stages.



EQ balance

As can be seen from the diagram of this section the EQ BALANCE control varies between HIGH, LOW and FLAT in its centre position.
The action of this control can be envisaged by imagining a pivot point at the centre of the graphic about which the frequency response of the graphic can be swung.
Turning the EQ BALANCE control to the right increases the top end and decreases the bottom end of the graphic, while turning it to the left decreases the top end and increases the bottom end.
The internal filter circuits that feed this control have been designed to allow the HIGH PASS and LOW LOW PASS signals to overlap in frequency so that fully LOW or fully HIGH may be used as individually useful sounds in their own right i.e. with the EQ BALANCE control set at a fully LOW PASS there is still enough higher frequency content in the sound to make it useful. The opposite being true when the EQ BALANCE control is set fully HIGH PASS.
Whether or not you understand its action, you will find the EQ BALANCE control a very easy and flexible way to instantly modify your sound over a wide range.

Effects loop

The EFFECTS loop is a serial type i.e. it breaks into the signal path after the GRAPHIC section but prior to the EQ BALANCE control. The signal level of this loop is -10dB, put in simple terms this means that the level of signal coming from the EFFECTS SEND socket is about the same as that coming from your instrument so any effects unit that works directly from your instrument should work quite happily in this loop.

Mute/on switch

The MUTE/ON switch is to MUTE the unit when either it is not being used, while changing guitars or while tuning (the TUNER OUTPUT socket still operates when the unit is in MUTE).
It is also very important to switch to MUTE when either turning the unit ON or OFF with the rear panel power switch. This will ensure that the unit powers up and down silently.

Output level

The OUTPUT LEVEL control is used to set the stage volume of the amplifier, this will normally end up being set at between 3 and 5 on the scale with a TRACE ELLIOT output stage or power amplifier. This leaves plenty of available rotation of the output control in hand for when the unit is used run power amps that require a higher level signal input to drive them.
However if you are using a TRACE ELLIOT output stage or power amplifier then please note that beyond about 4 on this scale your amplifier will almost certainly be running into clipping.

BACK PANEL FACILITIES (rack mount pre-amp only)

Tuner output

This is a line out socket with signal at a suitable level for direct connection to a tuner. Connecting a tuner in this way means you do not have to plug your tuner in line with your instrument and risk any degradation of the bass signal. The tuner may be left permanently connected without affecting the signal in any way.
The signal at this output is taken from before the pre shape and may be used as an additional full range effects send if required. The bass signal remains at this output when the unit is switched to MUTE to allow silent tuning to be carried out.

Effects loop

The EFFECTS LOOP is a full range, serial, mono effects loop i.e. the signal is the full range bass signal taken from after the graphic equalisation but prior to the EQ BALANCE control.
The signal level for this effects loop is -10dB to accommodate a wide range of effects units. As a general rule effects units intended to have the instrument plugged straight into them will use -10dB as will most semi pro devices.
This effects loop is placed in SERIES with the front panel EFFECTS LOOP.
Because this is a serial effects loop, the signal path through the GP7SM is broken to include whatever effects unit is being used within the loop. Consequently the integrity of the bass will depend upon the quality of the direct signal through the external effects device being used.

Balanced D.I. output

The balanced D.I. output is provided on standard male XLR socket, this D.I. output is switchable between PRE and POST EQ.
PRE EQ takes its signal from before the graphic equaliser but after the graphic pre shape and POST EQ takes its signal from after all equalisation and effects loops but prior to the output level control.
The D.I. output is of a fixed level to suit the LOW IMPEDANCE MICROPHONE input on a mixing console.

Full range line output

The LINE OUTPUT socket is a full range output used for connection to a power amplifier for full range operation with the level of signal adjustable from the front panel OUTPUT LEVEL control.

BACK PANEL FACILITIES (all other SM series units)

Tuner output

This is a line out socket with signal at a suitable level for direct connection to a tuner. Connecting a tuner in this way means you do not have to plug your tuner in line with your instrument and risk any degradation of the bass signal. The tuner may be left permanently connected without affecting the signal in any way.
The signal at this output is taken from before the pre shape and may be used as an additional full range effects send if required. The bass signal remains at this output when the unit is switched to MUTE to allow silent tuning to be carried out.

Power switch

Once the correct supply voltage has been set the GP7SM can be turned on with the POWER switch on the rear of the unit. Always make sure the front panel MUTE/ON switch is in the MUTE position prior to switching ON or OFF. This will ensure the GP7SM powers up and down silently.